



ARTHUR CARHART NATIONAL WILDERNESS TRAINING CENTER

# MINIMUM REQUIREMENTS DECISION GUIDE

## WORKSHEETS

*“ . . . except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”*

– the Wilderness Act, 1964

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Please refer to the accompanying MRDG *Instructions* for filling out this guide.  
The spaces in the worksheets will expand as necessary as you enter your response.

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### Clean and Reseal Hidden Valley Tank on Kofa National Wildlife Refuge

**Step 1:** Determine if any administrative action is necessary.

<p><b>Description:</b> Briefly describe the situation that may prompt action.</p>
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Hidden Valley Tank is a natural bedrock pothole in the Hidden Valley Hills in the western portion of the Kofa National Wildlife Refuge (Refuge) that collects and holds rainwater. It is located at 33° 16.661'N, 114° 12.343'W, and is about one and one-half miles east of U.S. Highway 95. Hidden Valley Tank was identified as a critical source of water for desert bighorn sheep (*Ovis canadensis mexicana*) in the *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd* which was completed by the U.S. Fish and Wildlife Service (Service) and the Arizona Game and Fish Department (AGFD) in April, 2007. The *Investigative Report* was written because desert bighorn sheep surveys estimated that the desert bighorn sheep population had dropped

between 2000 and 2006 to approximately 50% of the long-term average of 760. The most recent desert bighorn sheep population survey in October 2010 did not show an appreciable recovery; the population was estimated to be 406 animals. The *Investigative Report* outlines a number of actions to increase numbers of desert bighorn sheep back to historic levels which would allow the Refuge to meet its conservation mandates relating to bighorn sheep. One of the actions described in the *Investigative Report* is the maintenance of permanent water at critical water sources. Maintaining a viable desert bighorn sheep population is critical to fulfilling the Refuge's purpose and maintaining an important wilderness value.

Hidden Valley Tank has been maintained as a bighorn sheep water source since the Refuge was established. Accumulated gravel was removed from Hidden Valley Tank in 1985 and it was sealed with a thin coating of a cement-like product. A silt retention dam and a water retention dam were constructed at the same time. A large shade structure was also built over the pothole at that time. Since 1985, the cement coating has worn thin and is absent in places allowing the accumulated water to escape. Also in 1985, two steel ladders (one 40' tall and one 12' tall) made of 2" steel pipe along with a short section of safety rail were constructed in order to allow human access to the tank from the drainage below.

During the winter of 2009/2010, Hidden Valley Tank filled with rainwater, but much of the rainwater leaked out of the pothole and was lost to evaporation, leaving a minimal pool of water. When full, Hidden Valley Tank holds approximately 12,000 gallons of water which is used extensively by bighorn sheep during the hot summer months. On August 17, 2010 when summer rainfall had not yet occurred in the area, Hidden Valley Tank was down to only a few inches of water. To prevent it from going dry, water was hauled by truck to the Refuge boundary and approximately 6,000 gallons were pumped into Hidden Valley Tank through 3,700 feet of 1 ½" firehose. More water would have been added, but significant leaks were noted on the western side of the pothole, and it was determined that additional water would be lost through the leaks.

Briefly, the proposed action is to remove and set aside any water that is in Hidden Valley Tank, remove accumulated sediment, rock, and gravel, clean the interior of the pothole, reseal the pothole using Thoroseal or a similar cement-sealing product, and replace any water that has been saved. Additional water may be added at the conclusion of the project to eliminate water hauling needs that may have otherwise taken place during the summer of 2011. A more complete project description is found under Alternative No. 1 – Proposed Action.

To determine if administrative action is necessary, answer the questions listed in A - F on the following pages.

#### **A. Describe Options Outside of Wilderness**

Is action necessary within wilderness?

Yes: ☒ No: ☐

**Explain:**

The Kofa Wilderness is one of the few areas left that is large enough and has the correct habitat configuration to support large numbers of desert bighorn sheep in a single protected area. While there are many mountain ranges in southern Arizona that contain bighorn sheep, these populations are often too small to ensure sustainability or to serve as source populations for broader conservation efforts. Many of these isolated areas are also federally designated wilderness managed by the Service or the Bureau of Land Management.

The significance of the Refuge is that it contains the largest contiguous block of habitat for desert bighorn sheep in southwest Arizona. While site-specific actions can sometimes be effectively conducted outside wilderness, broad scale management actions must occur within wilderness. Wilderness designation covers 510,000 acres of the Refuge's 665,400 acres. In many instances, conservation actions directed at bighorn sheep on the Refuge will need to be conducted within wilderness. In this case, Hidden Valley Tank is located within wilderness, and activities designed to maintain it cannot take place outside of wilderness.

Desert bighorn sheep populations are at risk or declining in many areas throughout their range in the southwest. Intervention to manage adverse impacts brought on by anthropogenic forces is frequently necessary. The impact of natural factors such as drought, disease and predation are exacerbated by unnatural factors such as habitat fragmentation, disease transmission by livestock, and direct disturbance caused by recreation. Historically, natural cyclic population fluctuation, even complete extirpation from specific mountain ranges, posed no serious lasting effect. This was true because bighorn sheep were able to move easily between mountain ranges, and often did, enabling appropriate habitats to be re-colonized and existing herds to receive genetic exchange. Unfortunately, human induced habitat fragmentation has seriously limited the ability of desert bighorns to move between areas of their historic range. Specific barriers in southern Arizona would include the cities of Tucson, Phoenix, other municipalities, the Central Arizona Project, other large canals, agricultural development along the Gila River, Interstate 10, Interstate 8, other highways, and growing recreational pressures. The introduction of disease through contact with livestock can also have dramatic impacts on bighorn herds, sometimes eliminating them in areas altogether. Isolated populations can also be vulnerable to human disturbance as was demonstrated near Tucson's Pusch Ridge, where hikers and their pets had dramatic effects on bighorns. Considering this information collectively, one can begin to understand the need for active management of this species, including the need to conduct transplants of desert bighorn sheep to specific areas as the need arises. For example, suitable habitats currently unoccupied due to a disease event may justify a translocation of several sheep at once, while smaller numbers of sheep may be needed for translocations to maintain genetic viability in smaller populations. The management

of desert bighorn sheep populations in the few larger blocks of habitat that remain is critical in order to have lasting source populations.

**B. Describe Valid Existing Rights or Special Provisions of Wilderness Legislation**

Is action necessary to satisfy valid existing rights or a special provision in wilderness legislation (the Wilderness Act of 1964 or subsequent wilderness laws) that allows consideration of the Section 4(c) prohibited uses? Cite law and section.

Yes: ☐ No: ☒ Not Applicable: ☐

**C. Describe Requirements of Other Legislation**

Is action necessary to meet the requirements of other laws?

Yes: ☒ No: ☐ Not Applicable: ☐

**Explain:**

The National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. §668dd, as amended) states, "the mission of the System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans." The Act emphasized that the Refuge System was created to conserve wildlife and their habitats. The Act defines conservation as sustaining, restoring or enhancing healthy populations of fish, wildlife, and plants utilizing methods and procedures associated with modern scientific resource programs. The Act directs the Service to manage each refuge to fulfill the mission of the System as well as the specific purposes for which that refuge was established. The specific purpose of the Kofa National Wildlife Refuge is found in Executive Order 8039 and is "for the conservation and development of natural wildlife resources."

The conservation of desert bighorn sheep was the driving force behind the establishment of the Refuge. In a letter to President Franklin D. Roosevelt on December 20, 1938, Lynn Lockhart, Chairman of the Democratic State Central Committee wrote: "During November and December 1937, it was proposed to set aside by Executive Order approximately 4,000,000 acres of land for the preservation of our bighorn mountain sheep... (and) as a result of our negotiations in Senator Hayden's office, the proposed refuges were reduced in size from approximately 4,000,000 acres to 1,500,000 acres." Also, the Arizona Game Protective Association issued a proclamation at its annual convention in Safford, Arizona on October 1, 1938 that states, in part: "WHEREAS, our Gaillard Bighorn Mountain Sheep, located on the desert ranges of Pima County and Yuma County, are in danger of extermination, and WHEREAS, the Biological Survey [the precursor to the Service], the University of Arizona, and the Arizona State Game Department and other interested Agencies have made a study of the situation and have plans, which, if put into effect, will save this species of valuable wildlife, and WHEREAS, as a result of these studies and

discussions, an Executive Order was drawn up during December 1937...which would set aside and establish two Bighorn Refuges to be administered by the Biological Survey, these refuges to be known as the Kofa Refuge, 672,500 acres in Yuma County, and the Cabeza Prieta Bighorn Refuge, approximately 881,440 acres..."

#### D. Describe Other Guidance

Is action necessary to conform to direction contained in agency policy, unit and wilderness management plans, species recovery plans, or agreements with tribal, state and local governments or other federal agencies?

Yes: ☒ No: ☐ Not Applicable: ☐

Explain:

The *Kofa National Wildlife Refuge & Wilderness and New Water Mountains Wilderness Interagency Management Plan and Environmental Assessment* (USDI 1997) addresses the significance of the bighorn sheep population on the Refuge and its importance in helping to achieve Refuge purposes, including its value as a wilderness resource and source population for regional translocations. The plan states that the Service will maintain and enhance the natural diversity of flora and fauna within the planning area and this will be done within a dominant wilderness context. The plan goes on to state that the Service will manage wilderness portions of the planning area using the minimum tools needed for maintaining an optimal desert bighorn sheep population while providing for maximum viable species diversity. On page 33, the plan states that maintenance, modification and/or repair of wildlife waters using mechanical means may be considered on a case-by-case basis. The plan also gives a list of wildlife waters where regular maintenance using mechanical means is expected.

#### E. Wilderness Character

Is action necessary to preserve one or more of the qualities of wilderness character including: untrammeled, undeveloped, natural, outstanding opportunities for solitude or a primitive and unconfined type of recreation, or unique components that reflect the character of this wilderness area?

Untrammeled: Yes: ☐ No: ☒ Not Applicable: ☐

Explain:

Undeveloped: Yes: ☐ No: ☒ Not Applicable: ☐

Explain:

Natural: Yes: ☒ No: ☐ Not Applicable: ☐

**Explain:**

The presence of desert bighorn sheep in the wilderness is important, and they represent an important aspect of the naturalness of this specific wilderness area. The appropriate stewardship of this wilderness resource is required to fulfill the purposes of the Refuge, including the Wilderness Act.

**Outstanding opportunities for solitude or a primitive and unconfined type of recreation:**

**Yes:** ☐ **No:** ☒ **Not Applicable:** ☐

**Explain:**

**Other unique components that reflect the character of this wilderness:**

**Yes:** ☐ **No:** ☒ **Not Applicable:** ☐

**Explain:**

The presence of small shades and silt-retention structures around bighorn sheep water sources could be considered a unique component of Kofa Wilderness.

#### **F. Describe Effects to the Public Purposes of Wilderness**

Is action necessary to support one or more of the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historical use?

**Recreation:** **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒

**Explain:**

Although viewing desert bighorn sheep is an expectation of many wilderness visitors.

**Scenic:** **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒

**Explain:**

There would be no change to the appearance of the area after the proposed maintenance to Hidden Valley Tank was completed.

**Scientific:** **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒

**Explain:**

The Kofa NWR desert bighorn herd is one of very few populations able to support transplant programs for landscape level conservation of this species.

**Education:** **Yes:** ☐ **No:** ☐ **Not Applicable:** ☒

**Explain:**

**Conservation:**      **Yes:** ☒      **No:** ☐      **Not Applicable:** ☐

**Explain:**

As described earlier in this document, the conservation of desert bighorn sheep at the Refuge is necessary for broader scale management and restoration of this important wildlife resource.

**Historical use:**      **Yes:** ☐      **No:** ☐      **Not Applicable:** ☒

**Explain:**

**Step 1 Decision:** Is any administrative action necessary in wilderness?

**Yes:** ☒      **No:** ☐      **More information needed:** ☐

**Explain:**

The Refuge was established in 1939 by Executive Order 8039 which described the legal purpose being “for the conservation and development of natural wildlife resources, and for the protection of public grazing lands and natural forage resources.” The Refuge is managed to fulfill the mission and goals of the Refuge System, as well as the specific purpose for which the Refuge was established. The conservation of desert bighorn sheep was the driving factor in the establishment of the Refuge. The presence of a thriving bighorn sheep population is an important indication that the Refuge is fulfilling its purpose.

With the passage of the Arizona Desert Wilderness Act of 1990, about 510,000 acres of the Refuge’s 665,400 acres became designated wilderness. For wilderness areas within the Refuge System, the purposes of the Wilderness Act are considered to be “within and supplemental” to the purposes for the specific Refuge. Put another way, the wilderness purposes are additional purposes and must be harmonized with specific Refuge purposes as well as the mission of the Refuge System.

In response to the noted decline of bighorn numbers on Kofa NWR, the Service and the Arizona Game and Fish Department (AGFD) prepared a report in April 2007 titled: *Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd* (Investigative Report). The purpose of the report was to provide an analysis of the probable causes of the decline and a strategic approach to a management program intended to lead to the recovery of this important wildlife resource. The plan includes three sections. Part 1 describes the current problem and provides some historical

context. The heart of the plan is Part 2, where issues are identified, and strategies to manage them are recommended. Part 3 is a concise matrix that contains prioritized implementation strategies. Many of the proposed management strategies are currently being implemented and include annual surveys to assess population dynamics, monitoring mortality factors such as disease and predation, and managing water availability.

The specific action being considered is to maintain a water source identified in the *Investigative Report* as a critical water source for desert bighorn sheep. After the proposed project is completed, it could be expected that the pothole will hold rainwater much longer by eliminating or greatly reducing leaks. The project is not expected to result in any visible change to the pothole or any improvements beyond those that are already there (such as the steel shade).

As stated earlier, the Refuge contains the largest contiguous block of habitat for desert bighorn sheep in southwest Arizona. The regional importance of this sheep population is widely recognized and has been a source for translocations since 1957. In fact, over the years 569 bighorn sheep have been captured on the Refuge and released in new areas to supplement populations in Arizona, New Mexico, Colorado, and Texas. Bighorn sheep from the Refuge have provided vital population boosts and genetic variety to bighorn sheep herds throughout the southwest.

The Refuge's role in the landscape level management of desert bighorn sheep cannot be overstated. Very few areas are able to provide sheep for translocations. The Refuge must meet the population objectives for sheep in order to carry out these conservation actions. Implementing the management action outlined earlier in the document is needed to help meet both Refuge purposes and population objectives tied to the transplant program. This includes maintaining critical bighorn sheep water sources.

The bighorn sheep population objectives set for the Refuge are an example where management direction was developed in support of landscape level conservation efforts. This is particularly true with regard to objectives meant to support transplant programs across a multi-state area. Service policy states that we manage populations for natural densities and levels of variation, however, on some refuges, including those with purposes tied to particular species; we can establish goals and objectives to maintain densities higher than those that would naturally occur in order to support conservation at multiple scales. Service policy also promotes, when and where practical, the support of reintroduction programs for native species in the context of surrounding landscapes.

Again, natural processes are difficult to describe in this case. The anthropogenic forces described earlier have had larger impacts. Specific management actions directed at bighorn sheep in wilderness may not be meant to increase or maintain the "naturalness" of the wilderness at a specific location or for a specific process. Rather, they may be intended to allow the numbers of desert bighorn sheep on the Refuge to be maintained



or increased for broader purposes. Prior to significant alteration of the region by humans, desert bighorn sheep would have been able to move between mountain ranges and cross desert floodplains and re-colonize mountain ranges where sheep numbers may have dropped for a variety of reasons, including predation or disease. Movements of sheep are now greatly restricted by highways, fences, canals, and human habitation.

In conclusion, there is a need to provide conservation actions in wilderness for desert bighorn sheep on the Refuge. The specific administrative action of maintaining critical water sources is needed in order to enhance the bighorn sheep population. This will further Refuge purposes, including Wilderness Act purposes, and help meet the Refuge System mission.

If action is necessary, proceed to Step 2 to determine the minimum activity.

## **Step 2: Determine the minimum activity.**

### **Description of Alternatives**

For each alternative, describe what methods and techniques will be used, when the activity will take place, where the activity will take place, what mitigation measures are necessary, and the general effects to the wilderness resource and character.

#### **Alternative No. 1 – Proposed Action**

**Description:** The maintenance of Hidden Valley Tank would involve Service and AGFD personnel, and volunteers digging accumulated gravel, rocks, and sediment out of the pothole by hand, using shovels, digging bars, and five-gallon plastic buckets. Before any gravel is removed any water in the pothole would be placed temporarily into collapsible 1,600-2,000-gallon water storage tanks using a portable, gasoline-powered water pump and 1-½" fire hoses. Approximately five cubic yards of sediment, rocks, and gravel are currently in the bottom of Hidden Valley Tank. The material removed would be placed downstream of the pothole and would be expected to wash downstream during future storm events. Once the gravel and sediments are removed, the surface of the pothole would be cleaned using water and handbrushes followed by rinsing using a portable pressure washer. A portable, gasoline-powered cement mixer would then be used to prepare the Thoroseal. One or two layers of Thoroseal, or other cement sealing material, would be applied by hand, using brushes and trowels, to the interior of the pothole. Pigment may be added to the Thoroseal to closely match the natural color of the bedrock. Any salvaged water would then be replaced in the pothole. Additional water may be added to the pothole at the conclusion of the project to eliminate the need to haul supplemental water in the summer of 2011. A broken rail in a short section of safety

fence at the top of the 40-foot tall steel ladder would be repaired using a welder before the project would begin.

Hidden Valley Tank is located approximately 1 ½ miles from U.S. Highway 95, and can be reached by following an easily discernable old road, or vehicle route, that leads east from the Refuge/Wilderness boundary 0.7 miles along a desert pavement terrace to the base of the hill where Hidden Valley Tank is located. The old road has virtually no perennial vegetation growing in it. Hidden Valley Tank is located about 300 feet from the end of the old road. Volunteers would park their vehicles off of the Refuge on the adjacent Bureau of Land Management (BLM)– managed public land and walk the 0.7 miles to Hidden Valley Tank. Two Service trucks with trailers could carry all of the equipment and materials needed to accomplish the project from the Refuge boundary to the end of the old road, and equipment and materials would be carried by hand the final 300 feet to the project site. Any materials or equipment needed in the tank itself would be raised using a pulley and rope system from an existing hoist arm left from the 1985 project. All vehicle tracks would be swept out at the conclusion of the project.

Agency personnel and volunteers would camp near the Refuge boundary on BLM-managed public land.

**Effects:**

**Wilderness Character**

**“Untrammeled”**

Refuge wilderness policy (610 FW 2.20) states that structures or installations that existed prior to wilderness designation may be retained and maintained if it is determined by the Service as a minimum requirement to administer the area as wilderness and is necessary to accomplish the purposes of the Refuge, including Wilderness Act. The wilderness policy also states that fish, wildlife, plants and their habitat are essential and inseparable components of wilderness. The proposed action maintains an existing natural rock pothole that was altered (by the addition of a shade structure, silt retention dam, water retention dam and access ladders) in 1985 as a critical water source for desert bighorn sheep.

**“Undeveloped”**

There would be temporary visual intrusion in the wilderness from equipment and materials, including two vehicles and trailers, and a group of volunteers and agency personnel. Once the project is completed, however, all equipment and any leftover materials would be removed. Natural sediment and rocks removed from the pothole and placed downstream of Hidden Valley Tank will only stay in place until rainwater from future storms wash and redistribute the material downstream. Pigment may be mixed with the Thoroseal to more closely match the natural color of the pothole and reduce any contrast with the surroundings. The imprint of man’s work would remain

substantially unnoticeable overall and the site would continue to contrast with other areas of growing mechanization.

**“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”**

The use of two vehicles, a gasoline-powered water pump and a water-pressure sprayer would be a temporary visual and auditory intrusion in wilderness. Should a member of the public witness hike to the project area and witness the use of power equipment and mechanized tools during the time the Hidden Valley Tank is being maintained, it may adversely affect their wilderness experience. Outstanding opportunities for solitude or a primitive and unconfined type of recreation offered on the Refuge would continue in the proposed action.

**“Natural”**

The removal of accumulated sediments in Hidden Valley Tank, resealing the pothole with one or two layers of pigmented Thoroseal, and the replacement of any rainwater that was set aside prior to the removal of sediment will only very temporarily change the natural regime of scouring, and sediment deposition and removal found in a drainage high in a desert mountain range. The last time this project was completed was in 1985, so the effectiveness of the effort may last another 26 years. There will be no change to the long-term naturalness of the area.

**Other unique components that reflect the character of this wilderness**

The Kofa wilderness is characterized by rugged desert mountain ranges surrounded by bajadas and separated by vast desert flats. There is evidence of past hard rock mining, livestock grazing, and the work of the Arizona Conservation Corps in the form of old roads, small concrete dams, mines, tailings piles, cemeteries, historic buildings, wells, windmills, and a corral in and immediately adjacent to wilderness. There is also past evidence of the work of the Service in the form of spring improvements and small shades and other structures in and near wildlife water sources. The Refuge is known for its conservation of desert bighorn sheep and its habitat. These unique components would not be altered or affected in the proposed action.

**Heritage and Cultural Resources**

All personnel involved in the proposed action would be reminded not to disturb any cultural or historic artifact that may be in the area including rock art, lithic scatters, and pot shards.

**Maintaining Traditional Skills**

The proposed action includes digging out accumulated sediment, rocks, and gravel using hand tools, and forming a bucket brigade to transport the material just downstream of Hidden Valley Tank. The process requires cooperation from many individuals and can be considered a traditional skill. Nearly all of participants in the project would walk in from the nearest designated road rather than accept a ride in the two vehicles that are

transporting materials and equipment on the old vehicle way. Hiking cross-country could be considered a traditional skill.

#### **Special Provisions**

The special provisions of wilderness designation which allow mining activity to continue on unpatented mining claims that were present at the time of the passage of the Desert Wilderness Act of 1990 would not be changed by the implementation of Alternative No. 1 – Proposed Action. The maintainance of wildlife water sources considered critical for bighorn sheep using mechanized tools covered in the Refuge's existing planning (USDI 1997) would continue.

#### **Economic and Time Constraints**

The proposed action requires a financial commitment to purchase need materials, provide necessary equipment and tools, and rent any equipment that may be critical to the project's success. Arrangements and agreements are in place with partner organizations to share the cost of implementing this alternative. It is anticipated that funding will be provided through the Service and partners.

The urgency of the action is driven by the depressed numbers of sheep on the Refuge and the cessation of regional translocation programs. Also, recent rainfall patterns on the Refuge have been favorable (at or above average since 2004) and have resulted in vegetation and habitat conditions beneficial for most wildlife, including bighorn sheep. However, most recently, the winter of 2010/2011 has provided less than an inch of rain on most of the Refuge, and long-term predictions call for a dry year and a hot summer in 2011. If the Proposed Action is completed, it is anticipated that there will not be a repeating need to haul supplemental water to Hidden Valley Tank during the summer of 2011 as there was in summer 2010.

#### **Additional Wilderness-specific Comparison Criteria**

The Refuge is at the center of the largest contiguous piece of desert bighorn sheep habitat for the subspecies *mexicana* (*O. c. mexicana*). While other mountain ranges contain this subspecies, they generally do not have a population of desert bighorn sheep large enough to support transplants of sheep from those mountain ranges to other mountain ranges where desert bighorn sheep numbers have declined or have been extirpated. The Refuge has been a source population for sheep transplants within Arizona and in the surrounding states for over 50 years. Transplants have been suspended since 2006, when the Refuge sheep population was found to have dropped to approximately 390 animals. Other mountain ranges in Arizona have been found to be able to support the removal of a few animals at a time, but cannot support the removal of 25 to 30 animals at one time, which is the desired number of bighorn sheep to effectively re-colonize a new area. The San Andres NWR in New Mexico, and the Bighorn, Santa Catalina, Table Top, Maricopa, and Mineral Mountains in Arizona are examples of areas where proposed desert bighorn sheep transplants are on hold pending an increase in sheep numbers on the Refuge.

### **Safety of Visitors, Personnel, and Contractors**

Individuals operating the gasoline-powered water pump and pressure washer would need safety glasses, hearing protection and gloves. Individuals operating the welder would need appropriate training, welding hood, jacket, and gloves. Those individuals working to raise and lower equipment using the rope and pulley system would need hardhats. Appropriate outdoor work attire (large-brimmed hat, boots, gloves, sunscreen, etc) and preparation would be required by all individuals participating in the project.

## **Alternative No. 2 – No Action**

### **Description:**

Under the No Action Alternative, Hidden Valley Tank would not receive any maintenance and would continue to leak whenever it filled with rainwater. Since Hidden Valley Tank is identified as a critical bighorn water source in the Investigative Report, it would continue to receive supplemental water whenever it is necessary until the populations of desert bighorn sheep had reached historical average (760 animals).

### **Effects:**

#### **Wilderness Character**

##### **“Untrammeled”**

The No Action Alternative could be considered more consistent with wilderness values than the proposed action from the standpoint that natural processes would be allowed to occur since there would be no temporary removal of accumulated sediment, rocks, and gravel from Hidden Valley Tank. However, the supplementation of water into Hidden Valley Tank during the summer months could be expected to take place more often in Alternative No. 2, so there may be additional effects to wilderness character over the long term.

##### **“Undeveloped”**

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action since there is no proposed changes to the existing developed components at Hidden Valley Tank (steel shade structure, sealed pothole, water and sediment retention dams, and steel access ladders).

##### **“Outstanding opportunities for solitude or a primitive and unconfined type of recreation”**

Supplementing water in Hidden Valley Tank could be expected to continue with regularity in the future since the leaking pothole would not be repaired. Should a member of the public witness the use of mechanized equipment during the repair project it may adversely affect their wilderness experience. Outstanding opportunities for solitude or a primitive and unconfined type of recreation offered on the Refuge would continue under Alternative 2 – No Action.

**“Natural”**

Under Alternative No. 2, as in Alternative No. 1, there would be no change to the naturalness of the Refuge.

**Other unique components that reflect the character of this wilderness**

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action.

**Heritage and Cultural Resources**

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action.

**Maintaining Traditional Skills**

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action, although we would forgo the opportunity to use a group of individuals to work cooperatively in a remote location to accomplish a task using mostly hand tools.

**Special Provisions**

The effect of Alternative 2 – No Action is the same as Alternative 1 – Proposed Action.

**Economic and Time Constraints**

Resealing Hidden Valley Tank would be expected to limit the amount of water supplementation by helicopter that may be needed in the summer months for about the next 26 years.

### Additional Wilderness-specific Comparison Criteria

Under Alternative 2 – No Action, there would be no change to the wilderness characteristic of having small developments (such as shade covers and sediment retention dams) at desert bighorn sheep water sources in the Kofa Wilderness.

### Safety of Visitors, Personnel, and Contractors

Alternative 2 – No Action provides more safety for agency personnel and volunteers, and visitors since the proposed project would not take place. However, there would be an expected continuation of the need to provide supplemental water during the hot summer months, which does pose a risk to the water truck drivers, and other support personnel.

### Comparison of Alternatives

It may be useful to compare each alternative's positive and negative effects to each of the criteria in tabular form, keeping in mind the law's mandate to "preserve wilderness character." N/C is no change expected.

	Alternative 1 Proposed Action	Alternative 2 No Action
Untrammelled	-	-
Undeveloped	n/c	n/c
Natural	n/c	n/c
Solitude or Primitive Recreation	-	+
Unique components	n/c	n/c
<b>WILDERNESS CHARACTER</b>	--	+-

When considering wilderness character, Alternative 2 is the most beneficial.

	Alternative 1 Proposed Action	Alternative 2 No Action
<b>Heritage &amp; Cultural Resources</b>	NA	NA
<b>Maintaining Traditional Skills</b>	+	-
<b>Special Provisions</b>	NA	NA
<b>Economics &amp; Time</b>	+	-
<b>Additional Wilderness Criteria</b>	+	-
<b>OTHER CRITERIA SUMMARY</b>	+++	---

When considering other criteria, Alternative 1 is the most beneficial.

	Alternative 1 Proposed Action	Alternative 2 No Action
<b>SAFETY</b>	NA	NA

## Safety Criterion

If safety issues override impacts to wilderness character or other criteria, provide documentation that the use of motorized equipment or other prohibited uses is necessary because to do otherwise would cause increased risks to workers or visitors that cannot be satisfactorily mitigated through training, use of personal protective equipment (PPE), or other requirements to alleviate the safety risk. (This documentation can take the form of agency accident-rate data tracking occurrences and severity; a project-specific job hazard analysis; research literature; or other specific agency guidelines.)

### Documentation:

Safety issues do not override impacts to wilderness character or other criteria in this analysis.

## Step 2 Decision: What is the Minimum Activity?

### Selected alternative:

Alternative No. 1 – Proposed Action

### Rationale for selecting this alternative (including documentation of safety criterion, if appropriate):

Alternative No. 1 - the Proposed Action is selected because it supports the effort to meet the bighorn sheep population goals described in the existing Refuge planning documents (USDI 1997) and the *Investigative Report and Recommendations for the Kofa Bighorn Herd* (2007), and supports the transplant goals for desert bighorn sheep within Arizona and in other parts of the southwest. Alternative No. 1 is in compliance with Service policy (610 FW 2.20) since the maintenance project proposed is to a pothole that was modified prior to wilderness designation, and the project is expected to benefit wildlife which is an essential and inseparable component of wilderness. Alternative No. 1 supports the conservation of wildlife and their habitats in wilderness in a manner consistent with the National Wildlife Refuge System Improvement Act of 1997.

### Monitoring and reporting requirements:

The effectiveness of the Proposed Action would be accomplished through regular checks of Hidden Valley Tank by personnel on foot. All critical bighorn sheep water sources are checked regularly, particularly during the summer months, to be certain that there is sufficient water. If the sealing is completed and the leaks repaired, it is expected that the regular water checks at Hidden Valley Tank for about the next 26 years would result in a finding of no water supplementation necessary. The two vehicles and trailers used to transport equipment and supplies would remain on the existing vehicle route. Care will be used by the drivers when turning around at the end of the road to avoid unnecessary soil disturbance. Any disturbance would be temporary and localized.



All equipment used would be removed at the conclusion of the project. All individuals involved would employ Leave No Trace techniques throughout the project.

**Check any Wilderness Act Section 4(c) uses approved in this alternative:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> mechanical transport | <input type="checkbox"/> landing of aircraft       |
| <input checked="" type="checkbox"/> motorized equipment  | <input type="checkbox"/> temporary road            |
| <input checked="" type="checkbox"/> motor vehicles       | <input type="checkbox"/> structure or installation |
| <input type="checkbox"/> motorboats                      |  |

**References Cited**

U.S. Department of the Interior, USFWS and BLM. 1997. Kofa National Wildlife Refuge and Wilderness and New Water Mountains Wilderness interagency management plan, environmental assessment and decision record. BLM Yuma Field Office and Kofa National Wildlife Refuge, Yuma, Arizona. 84pp.

U.S. Fish and Wildlife Service (USFWS) and AGFD. 2007. Investigative Report and Recommendations for the Kofa Bighorn Sheep Herd. 39pp. Available at <http://www.fws.gov/southwest/Refuges/arizona/kofa/docs/031479%20attachment.Kofa%20NWR-AGFD%20Bighorn%20sheep%2004-17-2007.pdf>